

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION

EATON CORPORATION,

Plaintiff,

Case No. 03-74844

vs.

HON. GEORGE CARAM STEEH

ZF MERITOR LLC, ARVINMERITOR,
INC. and ZF FRIEDRICHSHAFEN AG,

Defendants.

ORDER GRANTING DEFENDANTS' MOTION FOR SUMMARY
JUDGMENT OF INVALIDITY OF '279 PATENT [DOC NO. 225]

The parties appeared before the Court on September 5, 2007 to argue defendants' motion for summary judgment of invalidity of the '279 patent as obvious in view of the prior art. 35 U.S.C. § 103. Defendants bring this motion for the first time due to the recent Supreme Court decision in KSR Int'l Co. v. Teleflex, Inc., ___ U.S. ___, 127 S.Ct. 1727 (2007), which substantially changed the legal analysis of an obviousness claim as previously developed by the Federal Circuit.

I. FACTS

A. Patent Claims

The '279 patent relates to method and apparatus for dealing with a problem called "wheel lockup condition" in a moving truck. In his claim construction report, the Special Master describes that a wheel lock-up condition can occur when a truck's brakes are applied and one or more wheels lose their grip on the road surface and stop rotating while the truck continues to move (or skid) down the road. This condition can

cause the truck's transmission control system to believe that the truck has purposely slowed down, and thus cause the system to downshift to a gear which is inappropriate for the actual speed of the truck. This can result in the driver losing control of the truck. (Special Master Report, para. 7-8).

The '279 patent responds to wheel lock-up by disengaging the clutch and prohibiting further shifting. Specifically, claim 1 requires immediately disengaging the clutch in response to sensing a wheel lock-up condition, and then, if the operator reapplys the throttle, the claim requires processing input signals to determine whether the wheel lock-up condition has ended. As construed by the Special Master, claim 1 requires first sensing the "input signal indicative of the operator set throttle position" to determine if it exceeds a predetermined position, and if so, then thereafter sensing the "input signal indicative of the rotational speed of said transmission output shaft" to determine whether the wheel lock-up condition has ended. Claim 15 requires prohibiting the central processing unit from generating transmission gear change command output signals during a wheel lock-up condition. Dependent claim 7 combines the features of claims 1 and 15. Dependent claims 3 and 8 require sensing the wheel lock-up condition by receiving a signal from an antilock braking system.

B. Prior Art

1. Kelsey Hayes German Reference

The Kelsey Hayes German reference is directed to a vehicle with a skid control system. The reference uses an automatic clutch controller to disengage the clutch when the skid control system generates a control or output signal. The engine remains disengaged from the driveline until the wheel lock-up condition has ended. This is accomplished by providing "a locking stage . . . which is activated by the output signal of

the control unit of the skid control system and which keeps the engine in a disengaged state during a braking action over several skid control cycles.” The locking stage continues, and the clutch remains disengaged, until the brake pedal is released, the gas pedal is applied, or some other signal confirms the end of the wheel lock-up condition and resets the system back to normal operation.

2. Magnusson

The Magnusson prior art reference is directed to a method of preventing erroneous gear selection in an automatic gear selection system when a signal representing vehicle speed may not accurately represent actual vehicle speed. The reference teaches that when a wheel lock-up condition is sensed, shifting to neutral and then prohibiting all gear change command output signals. The reference then uses a two-step verification process for determining whether the wheel lock-up condition has ended before allowing the transmission control unit to resume shifting. The control logic first compares the current wheel speed to a reference value to determine possible skid termination. If a skid termination is detected, then the system verifies skid termination by comparing the change in wheel speed (acceleration or deceleration) to a reference value.

3. Ravenel

The Ravenel prior art reference discloses an automatic gear selection system for a mechanical transmission. Ravenel discloses sensing a wheel lock-up condition. The system normally sends gear change command output signals through AND gates 14 and 16 to the transmission actuators. Ravenel teaches the use of additional blocking circuitry to block signals that have been generated by the processing unit in response to a wheel lock-up condition.

II. **LEGAL STANDARD**

The principle underlying § 103 is that if an invention would naturally follow from combinations or applications of prior art, then it does nothing to promote the progress of the art regardless of its novelty or usefulness. In Graham v. John Deere Co., 383 U.S. 1 (1966), the Supreme Court interpreted § 103 to meet the constitutional standard for obviousness. Three inquiries were drawn directly from the language of the statute: (1) the scope and content of the prior art, (2) the level of ordinary skill in the art; and (3) the existence of any differences between the claimed invention and the prior art as it existed at the time of invention. The Court also found that other traditional factors, such as long-felt but unmet needs, the failure of others, and commercial success, may be relevant to whether the claimed invention was obvious. The Federal Circuit, in its decisions, recognized that an inquiry into the obviousness of an invention posed the risk of using hindsight to invalidate patents. That court therefore developed what became known as the teaching, suggestion, or motivation (TSM) test, which requires a finding of some basis, from the perspective of a person of ordinary skill in the art at the time of invention, for combining prior art references.

In KSR Int'l Co. v. Teleflex, Inc., __ U.S. __, 127 S.Ct. 1727 (2007), the Supreme Court clarified the standard for obviousness under § 103, and particularly the TSM test as delivered by the Federal Circuit. Id. at 1734-35, 1739. The Court held that an obviousness determination does not require rigid application of the TSM test, not even at the summary judgment stage. Id. at 1739, 1741. The Court recognized that a specific teaching, suggestion, or motivation to combine prior art references may not exist because “it often may be the case that market demand, rather than scientific literature, will drive design trends.” Id. at 1741. Instead, testimony from expert

witnesses may be considered to understand why it would have been obvious to one of ordinary skill in the art to combine the prior art in a particular way. “[T]he analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *Id.* “If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability.” *Id.* at 1740. “Granting patent protection to advances that would occur in the ordinary course without real innovation retards progress and may, in the case of patents combining previously known elements, deprive prior inventions of their value or utility.” *Id.* at 1741.

III. ANALYSIS

A. Claim 1

Claim 1 requires sensing the presence of a wheel lock-up condition, and in response causing the clutch to be disengaged. Claim 1 then uses input signals to determine whether wheel lock-up has ended. If the operator reapplies the throttle, then the input signal indicative of the rotational speed of the transmission output shaft is used to determine whether the wheel lock-up condition has ended. This is referred to as a two-step verification process: first the operator reapplies the throttle, which is one indication that wheel lock-up has ended, and then the system checks the speed of the transmission output shaft to determine if the vehicle speed is the same as output shaft speed, a second indication that wheel lock-up has ended.

Defendants contend that claim 1 is obvious in view of a combination of the Kelsey-Hayes German and Magnusson references. The German reference describes a vehicle equipped with a manual transmission, and the engine stalling problem attendant with manual systems during an emergency stop since the driver is not able to

disengage the clutch quickly enough. To solve this problem, the German reference teaches disengaging the clutch in response to an imminent lock-up condition.

The fact that the German reference addressed an enhancement of a manual transmission rather than an automatic transmission is not conclusive in the obviousness analysis. The Supreme Court recognized that a person of ordinary skill attempting to solve a problem will not just be led to those elements of prior art designed to solve the same problem. KSR, 127 S.Ct. at 1742. Therefore, the German reference can be considered as prior art, and the teaching of disengaging the clutch when a wheel lock-up condition is sensed is known in that prior art reference.

The fact that Magnusson does not teach disengaging the clutch, but rather shifting to neutral in response to a wheel lock-up condition does not diminish its value as prior art. Defendant's expert, Dr. Davis, explains in his declaration that shifting the transmission to neutral is an obvious and interchangeable variation of disengaging the coupling because both responses serve the purpose of breaking torque and disconnecting the engine from the transmission output shaft and drive wheels. Magnusson teaches that there are alternatives other than shifting to neutral since that is given as one example of a means to ensure that an incorrect gear is not selected. The Kelsey-Hayes German reference teaches the obvious alternative of disengaging the clutch. (Davis Decl. 3/16/06 at ¶ 46).

In order to determine when a skid condition has ended, the German reference uses a single input signal, which can be either a gas pedal signal, a brake signal or a brake light activation signal. These options recognize the logic that a driver is unlikely to step on the gas pedal or release the brake pedal unless the skid has ended. Sensing the gas pedal signal corresponds to claim 1's teaching of sensing a throttle position that

exceeds a predetermined minimum reference value. The Magnusson reference uses a two step verification process, first checking current wheel speed, and second checking the change in wheel speed. This verification process corresponds to claim 1's teaching of processing an input signal to verify the end of wheel lock-up. Plaintiff contends Magnusson neither teaches the claimed input signals nor the particular sequence of claim 1. However, there is a close relationship between wheel speed and output shaft speed that is recognized in the Magnusson patent. (Magnusson teaches generally the speed of the vehicle wheel is proportional to the speed of the vehicle, and “[i]n most cases, it is suitable to sense the r.p.m. of the gearbox output shaft.”) Therefore, the German reference teaches the first input signal, and Magnusson teaches the second input signal, of claim 1. The advantage of combining both to ensure an accurate conclusion that wheel lock-up has ended is manifest.

The Court concludes that claim 1 of the ‘279 patent is obvious in light of the prior art Kelsey-Hayes German and Magnusson references.

B. Claim 15

Claim 15 teaches prohibiting the processing unit from generating all transmission gear change command output signals for as long as a wheel lock-up condition is sensed. Ravenel and Magnusson each disclose sensing a wheel lock-up and then preventing shifts. The dispute in this case centers on whether “preventing” shifts renders a claim that prevents the “generation” of shift commands obvious as a predictable variation.

The prior art Ravenel reference teaches the use of additional blocking circuitry to block signals that have been generated by the processing unit in response to a wheel lock-up condition. Dr. Caulfield testified at his deposition that Ravenel does not render

the teachings of the '279 patent obvious because it fails to teach the function on claim 15 of "prohibiting said processing unit from generating all transmission gear change command output signals." For purposes of this motion, defendants agree with Dr. Caulfield's interpretation of Ravenel. Defendants look to the Ravenel "processing unit" (i.e., the analog circuitry that controls the transmission) as a whole, and contend that it does not generate gear change signals during a wheel lock-up because no such signals flow out of the circuitry to the transmission actuators. While Ravenel does not disclose using the corresponding structure found by the Special Master - the logic of the central processing unit - to prevent transmission gear change commands in response to a wheel lock-up, the '279 patent explicitly acknowledges that the processing unit may include analog or digital electronic hardware as an alternative to a microprocessor. ('279 patent, col. 3, ll. 60-64).

Ravenel prevents not only unsafe or undesirable shifts, it prevents all shifts. The Court agrees that claim 15 is a predictable variation on the teachings of Ravenel. See Leapfrog Enters., Inc. v. Fisher-Price, Inc., 485 F.3d 1157, 1161 (Fed. Cir. 2007) (alleged invention obvious in view of what "common sense" would tell the skilled artisan); KSR, 127 S.Ct. at 1731 ("predictable variations" are not patentable). As in Leapfrog, the particular mechanism selected for blocking gear shifts is insignificant. It merely reflects available choices based on technology improvements, having nothing to do with the essential objectives of this invention.

A second major disagreement focuses on whether the difference between a command to shift to neutral in a prior art reference and a command to simply disengage the clutch precludes a finding of obviousness. The Magnusson reference generates a transmission gear change command signal to shift the transmission into neutral in

response to wheel lock-up. Plaintiff argues that Magnusson teaches away from prohibiting all gear shift commands. In addition, Judge Luckern, who presided over the related ITC trial, concluded that the Magnusson taught away from claim 15.

Once the transmission is in neutral, Magnusson prohibits all further shifting during the lock-up condition. Both Magnusson and the '279 patent disconnect the driveline and then prohibit all further shifting during the wheel lock-up, the only difference being that one accomplishes this task by disengaging the clutch while the other does so by shifting to neutral. At this point the Court must acknowledge that it does not take one skilled in the art to recognize that both disengaging the clutch and shifting the transmission to neutral accomplishes the same outcome. Anyone who has driven a vehicle with a manual transmission understands the advantages associated with disengaging the clutch. If one is driving a manual transmission vehicle in heavy traffic and must suddenly decelerate, disengaging the clutch has the advantage of allowing the person to watch his speed drop, and as it levels off, to chose the appropriate gear. On the other hand, if the person knows he will be coming to a stop at the end of the deceleration, he can shift into neutral and complete the stop, which he must do before he can accelerate and shift into first gear. Therefore, the teaching in the German reference of disengaging the clutch is relevant prior art, and the teaching in Magnusson of shifting to neutral does not teach away from disengaging the clutch.

Disengaging the clutch, as taught in the '279 patent, is preferable to Magnusson's shifting to neutral, because in an emergency it is easier to reengage the clutch than to shift from neutral back into gear. Dr. Caulfield concurs in this opinion:

Those of ordinary skill in the art would recognize that in a wheel lock-up condition there is a substantial difference between being in gear, even if the clutch is disengaged, and being in neutral. For example, if the vehicle

is in neutral, the driver may not be able to get back into gear after the wheel lock-up condition ceases, and thus the driver has less control than if the vehicle is already in gear. It is generally significantly easier to re-engage the clutch than it is to get back into gear from neutral. This is particularly significant if, for example, the vehicle is in a skid going down a steep hill, where the driver would ordinarily want to be in gear, e.g., to be able to use the engine to assist with braking (i.e., not free wheeling).

(Caulfield Rebuttal Report, pp. 3-4). The experts agree that disengaging the clutch would have been a predictable variation on Magnusson's teaching to shift to neutral.

(Davis Expert Report, 3/16/06, ¶ 46).

In light of Ravenel and Magnusson, whether considered alone or in combination, claim 15 recites a predictable variation on the prior art.

C. Dependent Claims

Claims 3, 7 and 8 are dependant on claims 1 and 15. As such, they cannot survive an obviousness test failed by claims 1 and 15.

IV. CONCLUSION

For the reasons given above, claims 1, 3, 7, 8 and 15 are invalid as obvious variations of the prior art. Defendants' motion for summary judgment of invalidity of the '279 patent is GRANTED.

Dated: September 26, 2007

S/George Caram Steeh
GEORGE CARAM STEEH
UNITED STATES DISTRICT JUDGE

CERTIFICATE OF SERVICE

Copies of this Order were served upon attorneys of record on September 26, 2007, by electronic and/or ordinary mail.

s/Josephine Chaffee
Deputy Clerk

